## Integrated Ecosystem Model (IEM) for Alaska and Northwest Canada

## Outline of major research activities for 2013-2016

| | Activities | | | |
|---|---|---|---|---|
| Year | Model Coupling | Tundra Fire & Treeline Dynamics | Thermokarst Dynamics | Wetland Dynamics |
| 2013 | Full assessment IEM 2.0 over the IEM domain.<br><br>Models driven by A1B emission scenario. | Development of IEM 2.1 by incorporation of tundra fire & treeline dynamics program code into IEM 2.0; proof-of-concept study. | Development of new program code; testing of landscape-scale thermokarst dynamics module. | Development of new program code for wetland dynamics. |
| 2014 | Full assessment of IEM 2.1 (IEM 2.0 with tundra fire & treeline dynamics) over the IEM domain.<br><br>Transition from AR4 models A1B scenario to AR5 models and RCPs, | Assessment of IEM 2.1 across the IEM domain. | Development of IEM 2.2 by incorporation of thermokarst dynamics program code into IEM 2.1; proof-of-concept study. | Testing and evaluation of wetland dynamics module. |

| | Activities | | | |
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| 2015 | Full assessment of IEM 2.2 (IEM 2.1 with thermokarst dynamics) over the IEM domain.<br><br>Models driven by RCP4.5, RCP6.0, and RCP8.5. | Identification and development of resource impact models that can be coupled to IEM 2.1 (tundra fire & treeline dynamics), e.g., caribou energetic models. | Assessment of IEM 2.2 across the IEM domain. | Development of IEM 2.3 by incorporation of wetland dynamics program code into IEM 2.2; proof-of-concept study. |
| 2016 | Full assessment of IEM 2.3 (IEM 2.2 with wetland dynamics) over the IEM domain.<br><br>Models driven by RCP4.5, RCP6.0, and RCP8.5. | Identification and development of resource impact models that can be coupled to IEM 2.2 (e.g., waterbird habitat models. | Identification and development of resource impact models that include thermokarst dynamics. | Assessment of IEM 2.3 across the IEM domain. |